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Hilitand VFD

Hilitand 380V Three-Phase VFD Inverter (5.5KW) User Manual

Model: VFD

1. Introduction

Thank you for choosing the Hilitand 380V Three-Phase VFD Inverter. This Variable Frequency Drive (VFD) is designed to control the speed and torque of three-phase asynchronous motors by varying the frequency and voltage of the power supplied to the motor. It offers comprehensive protection features and is suitable for various industrial and commercial applications, including production machinery, drying fans, and pumps.
Please read this manual thoroughly before installation, operation, or maintenance to ensure safe and efficient use of the product.

2. Safety Information

WARNING: Electrical Shock Hazard

- All electrical work must be performed by qualified personnel in accordance with local and national electrical codes.
- Ensure the power supply is disconnected and locked out before performing any wiring, inspection, or maintenance.
- Do not touch electrical components immediately after power is turned off, as residual voltage may be present. Wait for at least 5 minutes for capacitors to discharge.
- Proper grounding is essential to prevent electric shock. Ensure the VFD is correctly grounded.
- Do not operate the VFD with damaged cables or if the enclosure is open or damaged.
- Keep children and unauthorized personnel away from the device.

3. Product Overview

3.1. External View and Components



Figure 1: Front-right view of the Hilitand 380V VFD Inverter, highlighting the main unit and a detailed inset of its control panel. The VFD features a robust, light-colored casing with ventilation grilles on the sides and top. The control panel, located on the front, includes an LED display, various function buttons, and a rotary knob for adjustments.



Figure 2: Top view of the Hilitand 380V VFD Inverter. This image clearly shows the integrated cooling fan for heat dissipation and the main power input/output terminals located at the top rear of the unit. Proper ventilation around this area is crucial for optimal performance.

3.2. Control Panel

The control panel provides an interface for monitoring and operating the VFD. It typically includes:

- **LED Display:** Shows operational status, frequency, voltage, current, and parameter values.
- **PRG (Program) Button:** Used to enter and exit parameter setting mode.
- **MF (Multi-Function) Button:** May be used for specific function selection or mode switching.

- **Up/Down Arrows:** Used to navigate menus and adjust parameter values.
- **ENTER Button:** Confirms selections and saves parameter changes.
- **RUN Button:** Starts the motor.
- **STOP/RESET Button:** Stops the motor and clears fault indications.
- **Rotary Knob:** Typically used for frequency adjustment or parameter value modification.

4. Setup and Installation

4.1. Mounting

- Mount the VFD vertically on a flat, non-flammable surface.
- Ensure adequate space around the unit (at least 10 cm on all sides) for proper ventilation and heat dissipation. Avoid mounting in direct sunlight or near heat sources.
- The ambient temperature should be within the specified operating range (typically 0°C to 40°C).
- Avoid locations with excessive dust, corrosive gases, or high humidity.

4.2. Wiring

IMPORTANT: Ensure all power is disconnected before wiring.



Figure 3: Rear-left view of the Hilitand 380V VFD Inverter, showing the warning label which typically contains important safety instructions and electrical specifications. This view also highlights the cooling vents on the side of the unit.

- **Power Input (R, S, T):** Connect the three-phase 380V AC power supply to the R, S, and T terminals. Use appropriate gauge wiring for the VFD's power rating.
- **Motor Output (U, V, W):** Connect the three-phase motor to the U, V, and W terminals. Ensure correct phase sequence for desired motor rotation.
- **Grounding (PE):** Connect the ground terminal (PE) of the VFD to a reliable earth ground. This is critical for safety and proper operation.
- **Control Terminals (Optional):** If external control (e.g., remote start/stop, speed potentiometer) is desired, refer to the detailed wiring diagram in the full technical manual for specific terminal connections.

4.3. Initial Power-Up

- After completing all wiring, double-check all connections for tightness and correctness.
- Ensure no tools or debris are left inside the VFD or near moving parts of the motor.
- Apply power to the VFD. The LED display should illuminate.

- Observe the display for any error codes. If an error occurs, refer to the Troubleshooting section.

5. Operating Instructions

5.1. Basic Operation

- **Starting the Motor:** Press the **RUN** button. The motor should start and accelerate to the set frequency.
- **Stopping the Motor:** Press the **STOP/RESET** button. The motor will decelerate and stop.
- **Adjusting Frequency/Speed:** Use the rotary knob to increase or decrease the output frequency, thereby changing the motor speed. Alternatively, use the Up/Down arrow buttons if configured for speed adjustment.

5.2. Parameter Settings

The VFD has various parameters that can be adjusted to optimize performance for specific applications. These include motor parameters, acceleration/deceleration times, control modes, and protection settings.

- Press the **PRG** button to enter parameter setting mode.
- Use the Up/Down arrows to navigate through parameter groups and individual parameters.
- Press **ENTER** to select a parameter and view its current value.
- Use the Up/Down arrows or rotary knob to change the parameter value.
- Press **ENTER** again to save the new value.
- Press **PRG** to exit parameter setting mode.

Refer to the complete technical manual for a detailed list and description of all parameters.

6. Maintenance

WARNING: Disconnect all power before performing any maintenance.

- **Regular Cleaning:** Periodically clean the VFD's exterior and ventilation openings to prevent dust accumulation, which can hinder cooling and lead to overheating. Use a soft, dry cloth or compressed air.
- **Check Connections:** Annually, inspect all electrical connections for tightness. Loose connections can cause overheating and intermittent operation.
- **Environmental Check:** Ensure the operating environment remains within specified limits (temperature, humidity, dust).
- **Fan Inspection:** Check the cooling fan for proper operation and ensure it is free from obstructions. Replace if noisy or not functioning correctly.

7. Troubleshooting

This section provides solutions for common issues. For complex problems, contact customer support.

Problem	Possible Cause	Solution
VFD does not power on	No input power; Blown fuse; Wiring error	Check power supply; Check fuses; Verify input wiring (R, S, T)
Motor does not run	Motor not connected; Incorrect parameters; Fault condition	Check motor wiring (U, V, W); Verify motor parameters; Check for fault codes on display
Overcurrent fault	Motor overload; Short circuit in motor/cables; Rapid acceleration	Reduce load; Check motor/cables for shorts; Increase acceleration time parameter
Overvoltage/Undervoltage fault	Input voltage too high/low; Regenerative braking	Check input voltage; Increase deceleration time; Consider braking resistor if applicable
Overheat fault	Insufficient ventilation; High ambient temperature; Dirty heatsink/fan	Improve ventilation; Reduce ambient temperature; Clean heatsink and fan

8. Specifications

Feature	Specification
Model Number	VFD
Input Voltage	380 Volts AC (VAC)
Output Voltage	380 Volts AC (VAC)
Power (Rated)	5.5 kW
Output Power	5500 Watts
Peak Output Power	6000 Watts
Inverter Capacity (Volt-Amp)	5500 VA
Efficiency	90% to 95%
Electrical Output Waveform	Pure Sine Wave
Recommended Applications	Industrial, Commercial
Weight	1.36 Kilograms
Compliance	CE, RoHS
Country of Origin	China

9. Warranty and Support

Hilitand is committed to customer satisfaction. If this product does not meet or exceed your expectations, or if you encounter any issues, please contact us directly. Our customer support team is ready to assist you and resolve any problems promptly.
For technical assistance, troubleshooting guidance, or warranty inquiries, please refer to your purchase documentation for contact details or visit the official Hilitand store page.

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